Appendix table 8-11.
Public understanding of the nature of scientific inquiry, by selected characteristics: 1999

Sex & level of education	Inquiry	Scientific study	Experiment	Probability
All adults	26	21	35	55
Sex				
Male	28	20	36	59
Female	24	22	33	51
Formal Education				
Less than high school	4	6	14	31
High school graduate	26	19	34	58
Baccalaureate	51	44	60	75
Graduate/professional	53	47	64	71
Science/mathematics education[a]				
Low	13	10	20	46
Middle	34	28	47	58
High	55	48	62	78
Attentiveness to science and technology[b]				
Attentive public	30	32	40	54
Interested public	31	23	40	58
Residual public	20	17	28	53

NOTE: The level of understanding of the nature of scientific inquiry is estimated using a combination of each survey participant's responses to three questions. To be classified as understanding the nature of scientific inquiry, a respondent had to answer all the probability questions correctly *and* either provide a "theory-testing" response to the question about what it means to study something scientifically or provide a correct response to the open-ended questions about the experiment, i.e., explain why it was better to test a drug using a control group. The three questions are:

"When you read news stories, you see certain sets of words and terms. We are interested in how many people recognize certain kinds of terms, and I would like to ask you a few brief questions in that regard. First, some articles refer to the results of a scientific study. When you read or hear the term scientific study, do you have a clear understanding of what it means, a general sense of what it means, or little understanding of what it means?" If the response is "clear understanding" or "general sense": "In your own words, could you tell me what it means to study something scientifically?"

"Now, please think of this situation. Two scientists want to know if a certain drug is effective in treating high blood pressure. The first scientist wants to give the drug to 1,000 people with high blood pressure and see how many experience lower blood pressure levels. The second scientist wants to give the drug to 500 people with high blood pressure, and not give the drug to another 500 people with high blood pressure, and see how many in both groups experience lower blood pressure levels. Which is the better way to test this drug? Why is it better to test the drug this way?"

"Now think about this situation. A doctor tells a couple that their 'genetic makeup' means that they've got one in four chances of having a child with an inherited illness. Does this mean that if their first three children are healthy, the fourth will have the illness? Does this mean that if their first child has the illness, the next three will not? Does this mean that each of the couple's children will have the same risk of suffering from the illness? Does this mean that if they have only three children, none will have the illness?

[a]Respondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as "middle" if they took six to eight such courses, and as "low" if they took five or fewer.

[b]To be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue area, report that he or she is "very well informed" about it; and be a regular reader of a daily newspaper or relevant national magazine. Citizens who report that they are "very interested" in an issue area, but who do not think that they are "very well informed" about it, are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue area. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

SOURCES: National Science Foundation, Division of Science Resource Studies (NSF/SRS), *NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 1999* (and earlier years). For a complete set of data from the survey, see J.D. Miller and L. Kimmel, *Public Attitudes Toward Science and Technology, 1979–1999, Integrated Codebook* (Chicago: International Center for the Advancement of Scientific Literacy, Chicago Academy of Sciences, 1999); and unpublished tabulations.

See figure 8-6 in Volume 1.